U.S. Department of the Interior • U.S. Geological Survey

MINERAL INDUSTRY SURVEYS

Gordon P. Eaton, Director — Reston, VA 20192

For information, contact:
Thomas S. Jones, Manganese Specialist
Telephone: (703) 648-4973, Fax: (703) 648-7757
E-mail: tjones@usgs.gov
Jesse Inestroza (Data), (703) 648-7968

MINES-DATA: (703) 648-7799
MINES FaxBack: (703) 648-4999
Internet: http://minerals.er.usgs.gov/minerals

MANGANESE IN SEPTEMBER 1996

In September, reported consumption of manganese ore containing 35% or more manganese, exclusive of that at iron and steel plants, was 35,300 metric tons, which was about 12% less than that of the previous month, according to the U.S. Geological Survey. This brought the revised year to date total to 306,000 tons. These figures increase to 39,800 and 346,000 when estimates for annual respondents are added on the basis of 1994 data. Corresponding industry stocks of ore at the end of the month were estimated as 262,000 tons, which includes an estimate for annual respondents based on 1994 data. This was a decrease of about 17% in comparison with the corresponding figure for stocks at the end of August. (Data for the most recent 13 months are graphed on page 3.)

The next report of data on domestic consumption and stocks of manganese ferroalloys and metals will pertain to the July through September quarter of 1996.

Note

Early availability of foreign trade statistics via FaxBack: The August trade data appearing in this report were placed on FaxBack in preliminary form as of October 24. The FaxBack document number for these preliminary tables was 420208.

Foreign trade data for September will appear in a subsequent report. According to the data for August tabulated in this report, total receipts of manganese units as ferromanganese were the greatest since May 1994. South Africa was a leading source for imports of manganese ferroalloys, accounting for approximately two-thirds of those of high-carbon ferromanganese and one-half of those of silicomanganese. Among exports, those of metal were the greatest since July 1995.

Data for Japan.--Use of manganese materials in steelmaking in 1976-95 is given in tables 8 and 9. Overall unit consumption as estimated in terms of manganese content was again the lowest of the period tabulated. The main factor producing a nominal overall decline in unit consumption of less than 0.5% was a further decrease in rate of use of manganese ore in steelmaking that was sufficient to more than offset increased unit consumption of silicomanganese.

The Defense Logistics Agency (DLA), U.S. Department of Defense, reported for September a cash disposal from the National Defense Stockpile of 10,560 tons of metallurgical-grade manganese ore, which resulted from modification of an existing contract. Later action: Effective October 1, 1996, DLA amended solicitation DLA-MET-101 for electrolytic manganese metal so as to increase the quantity being offered for sale to 1,814 tons. The contact for this solicitation is Linda Jeffery, telephone number (703) 767-5501.

Two of the largest domestically headquartered manufacturers of dry cell batteries were undergoing changes in ownership. Duracell International Inc., headquartered in Bethel, CT, announced on September 12, 1996, that it had agreed to a merger with The Gillette Company that was to become effective December 15, 1996.[1] The Rayovac Corp., headquartered in Madison, WI, announced on September 13, 1996, that an 80% share in the company had been sold to Thomas H. Lee, a Boston investment firm, and its affiliates.[2]

In South Africa, a joint venture company was formed between South Africa's Feralloys Ltd. and Japan's Mizushima Ferro Alloy Co. Ltd. and Sumitomo Corp. for production of low- and medium-carbon ferromanganese. The plans were to establish facilities within Feralloys' Cato Ridge plant having an annual capacity of about 30,000 tons, with operation to begin in early 1998. Ore feed for the plant would come from The Associated Manganese Mines of South Africa Ltd., of which Feralloys is a subsidiary. Mizushima, a subsidiary of Kawasaki Steel Corp., would provide technology and Sumitomo would provide international marketing. Capitalization of the joint venture was 50% by Feralloys, 40% by Mizushima, and 10% by Sumitomo.[3]

Prepared by the Metals Section and the Data Collection and Coordination Section, November 15, 1996.

This was the second joint venture of a similar nature between Japanese and South African companies that was publicized within a period of 3 months (see the Manganese in June 1996 report).

[1]Duracell Intl. Inc., Annual Report for Fiscal Year 1996, p. 54.
[2]Rayovac Corp., Announcement, Sept. 13, 1996.
[3]American Metal Market. V. 104, No. 186, Sept. 25, 1996, p. 5.

TABLE 1
SELECTED U.S. FOREIGN TRADE IN MANGANESE 1/

(Metric tons, manganese content) 2/

	Imports for consumption						Exports					
	Ore and dioxide		Ferroalloy and metal		Total		Ore		Ferroalloy and metal		Total	
1995:												
August	25,100		27,200		52,300		579		1,550		2,130	
January-August	112,000		294,000		406,000		4,700		14,000		18,700	
1996:												
January	8,860	3/	47,100	3/	56,000		386		1,540		1,930	
February	1,410	3/	36,200	3/	37,600		1,620		1,670		3,290	
March	14,400	3/	46,900	3/	61,300		435	r/	1,610		2,050	r/
April	32,500		61,400	3/	93,900		1,220	r/	1,760		2,980	r/
May	20,400	3/	46,800		67,200		2,240		1,630		3,870	
June	26,300	3/	45,000	3/	71,300		2,550		1,230		3,780	
July	18,100	3/	19,500		37,700		1,210		841		2,050	
August	7,700	3/	55,500	3/	63,200		2,080		1,210		3,290	
Total	130,000		359,000		488,000		11,700		11,500		23,200	

r/ Revised.
1/ Data are rounded to three significant digits; may not add to totals shown.
2/ As reported except as estimated for imports of manganese dioxide and manganese waste and scrap and for exports from gross weights.
3/ All or part of these data have been referred to the Bureau of the Census for verification.

Source: Bureau of the Census.

TABLE 2
U.S. IMPORTS FOR CONSUMPTION OF SILICOMANGANESE IN AUGUST 1996 1/

(Metric tons)

				Year to date		
Source	Gross weight	Mn content	Customs value	Gross weight	Mn content	Customs value
Argentina	--	--	--	7,490	4,870	$4,910,000
Australia	4,310	2,860	$1,900,000	30,800	20,600	20,600,000
France	--	--	--	20,900	13,800	11,100,000
Georgia	--	--	--	1,260	884	701,000
India	4,230	2,800	2,060,000	35,800	23,200	21,500,000
Kazakstan	--	--	--	4,000	2,290	2,300,000
Macedonia	--	--	--	11,000	7,460	4,910,000
Mexico	1,900	1,240	922,000	16,500	10,800	9,980,000
Norway	1,610	969	1,490,000	5,740	3,440	5,410,000
Poland	--	--	--	3,040	2,100	2,050,000
Romania	1,470	981	645,000	12,400	8,290	6,790,000
Russia	--	--	--	1,200	778	597,000
South Africa	17,500	11,700	9,580,000	61,700	41,900	37,900,000
Spain	--	--	--	1,800	1,130	1,720,000
Venezuela	2,800	1,830	1,370,000	15,600	10,200	9,760,000
Total	33,800	22,400	18,000,000	229,000	152,000	140,000,000
Total, general imports	33,800	22,400	18,000,000	232,000	153,000	142,000,000

1/ Data are rounded to three significant digits; may not add to totals shown.

Source: Bureau of the Census.

TABLE 3
U.S. IMPORTS FOR CONSUMPTION OF FERROMANGANESE IN AUGUST 1996 1/

(Metric tons)

Source	Gross weight	Mn content	Customs value	Year to date Gross weight	Year to date Mn content	Year to date Customs value
Low carbon:						
Bangladesh	--	--	--	28	24	$16,700
Belgium	4	4	$2,610	24	20	14,400
Brazil	--	--	--	20	17	39,000
Canada	--	--	--	42	34	53,000
Italy	782	699	1,250,000	3,970	3,550	6,410,000
Japan	--	--	--	1,980	1,630	2,130,000
Norway	--	--	--	1,070	883	1,240,000
South Africa	100	91	187,000	1,760	1,620	3,060,000
Total, low carbon	885	794	1,440,000	8,890	7,770	13,000,000
Total, general imports of low carbon	926	828	1,460,000	8,920	7,800	13,000,000
Medium carbon, 1%-2% C:						
Brazil	--	--	--	3,890	3,120	3,320,000
China	--	--	--	8,460	6,820	6,630,000
France	--	--	--	4,200	3,430	3,280,000
Japan	2,500	2,010	2,020,000	17,600	14,200	13,900,000
Mexico	800	643	634,000	16,300	13,100	13,400,000
Norway	--	--	--	2,540	2,080	2,060,000
South Africa	120	94	103,000	3,740	3,010	3,270,000
Total, m.c., 1%-2% C	3,420	2,750	2,750,000	56,700	45,700	45,800,000
Total, general imports of m.c., 1%-2% C	3,420	2,750	2,750,000	56,700	45,700	45,800,000
High carbon:						
Australia	4,610	3,520	2,010,000	23,200	17,400	9,470,000
Brazil	7,160	5,420	2,980,000	22,000	16,500	9,180,000
France	--	--	--	58,300	45,700	27,300,000
Mexico	--	--	--	6	5	3,650
Norway	--	--	--	56	45	66,500
South Africa	25,100	19,600	11,500,000	85,500	66,900	38,800,000
Total, high carbon	36,900	28,600	16,500,000	189,000	147,000	84,900,000
Total, general imports of high carbon	36,900	28,600	16,500,000	189,000	147,000	84,900,000
Grand total	41,200	32,100	20,700,000	255,000	200,000	144,000,000
Grand total, general imports	41,200	32,200	20,700,000	255,000	200,000	144,000,000

1/ Data are rounded to three significant digits; may not add to totals shown.

Source: Bureau of the Census.

TABLE 4
U.S. IMPORTS 1/ OF MANGANESE ORE (20% OR MORE MN) IN AUGUST 1996 2/

(Metric tons)

Source	20% - 47% Mn Gross weight	20% - 47% Mn Mn content	47% or more Mn Gross weight	47% or more Mn Mn content	Total Gross weight	Total Mn content
Gabon	--	--	24,100	6,370 3/	24,100	6,370
Mexico	1,090	399	156	102 3/	1,250	501
Total	1,090	399	24,300	6,470	25,400	6,870
Year to date:						
Australia	--	--	68,500	34,500	68,500	34,500
Brazil	18,700	4,640	--	--	18,700	4,640
Gabon	--	--	146,000	57,200	146,000	57,200
Mexico	23,000	8,510	893	595	23,900	9,110
South Africa	--	--	27,000	12,900	27,000	12,900
Total	41,700	13,200	242,000	105,000	284,000	118,000

1/ Quantities for general imports and imports for consumption are identical.
2/ Data are rounded to three significant digits; may not add to totals shown.
3/ All or part of these data have been referred to the Bureau of the Census for verification.

Source: Bureau of the Census.

TABLE 5
U.S. IMPORTS FOR CONSUMPTION OF MANGANESE DIOXIDE AND MANGANESE METAL IN AUGUST 1996 1/

(Metric tons, gross weight)

	Manganese dioxide				Manganese metal			
			Year to date		Unwrought		Other	
Source	Quantity	Customs value	Quantity	Customs value	Quantity	Year to date	Quantity	Year to date
Australia	357	$486,000	13,100	$18,500,000	--	--	--	--
Austria	--	--	2	4,080	--	--	--	--
Belgium	55	89,200	756	1,300,000	--	--		30
Brazil	--	--	254	349,000	--	--	--	--
Canada	--	--	5	7,940	--	--	1	8
China	--	--	17	19,600	80	560	--	--
France	--	--	--	--	--	--	17	63
Germany	--	--	43	191,000	--	--	9	152
Ireland	980	1,370,000	4,170	5,830,000	--	--	--	--
Japan	--	--	6	16,400	--	--	--	--
Mexico	--	--	4	6,480	--	--	--	--
Russia	--	--	--	--	2 2/	3	--	--
South Africa	--	--	153	240,000	856	5,400	16	276
Ukraine	--	--	--	--		90	--	--
United Kingdom	--	--	360	504,000	--	--	(3/)	152
Total	1,390	1,950,000	18,900	27,000,000	938	6,060	27	681
Total, general imports	1,390	1,950,000	18,900	27,000,000	974	6,430	27	681

1/ Data are rounded to three significant digits; may not add to totals shown.
2/ All or part of these data have been referred to the Bureau of the Census for verification.
3/ Less than 1/2 unit.

Note: Imports for consumption of metallic manganese waste and scrap totaled 8 tons, of which 4 tons was from Canada and 4 tons was from Mexico, to give a year to date total of 163 tons.

Source: Bureau of the Census.

TABLE 6
U.S. EXPORTS OF MANGANESE ORE (20% OR MORE MN), FERROMANGANESE, SILICOMANGANESE, AND MANGANESE METAL BY COUNTRIES OF DESTINATION IN AUGUST 1996 1/

(Metric tons, gross weight)

	Manganese ore		Ferromanganese, 2% or less C		Silicomanganese		Manganese metal 2/	
	August	Year to date	August	Year to date	August	Year to date	August	Year to date
Australia	--	142	--	--	--	2	--	--
Belgium	661	2,750	--	--	--	--	76	187
Bolivia	--	3	--	--	--	--	--	--
Brazil	135	1,880	--	12	--	5	--	46
Canada	792	3,630	307	3,880	241	3,810	99	642
China	--	5,620	--	--	--	--	--	--
Colombia	--	--	--	31	--	--	--	3
El Salvador	--	354	--	--	--	--	--	--
France	1,310	1,990	--	94	--	--	98	342
Germany	--	478	--	--	--	--	--	95
Hong Kong	--	--	--	6	--	--	1	2
India	--	153	--	--	--	--	--	41
Italy	656	656	--	--	--	--	--	16
Japan	--	1,680	--	--	--	--	73	775
Korea, Republic of	--	519	--	--	--	--	20	112
Mexico	--	71 3/	3	145	7	269	12	267
Netherlands	--	--	--	--	--	139	55	433
Saudi Arabia	--	--	--	--	--	--	1	1
Sweden	606	3,380	--	--	--	--	18	88
Taiwan	--	--	--	--	--	--	12	51
Trinidad and Tobago	--	159	--	--	--	--	--	--
United Kingdom	--	(4/)	--	--	--	--	193	948
Venezuela	--	--	--	14	--	--	--	--
Total	4,160	23,500	310	4,180	249	4,230	656	4,050

1/ Data are rounded to three significant digits; may not add to totals shown.
2/ Includes manganese-aluminum, some other alloys, and waste and scrap.
3/ Data revised by the Bureau of Census.
4/ Less than 1/2 unit.

Note: Exports of ferromanganese with more than 2% carbon totaled 187 tons, of which 98 tons went to Canada, 76 tons went to Venezuela, and 13 tons went to Mexico, to give a year to date total of 1,710 tons.

Source: Bureau of the Census.

TABLE 7
U.S. FOREIGN TRADE IN SELECTED MANGANESE CHEMICALS IN AUGUST 1996, BY CLASS 1/

Class	Gross weight (metric tons)	Value 3/ (thousands)	Principal sources and destinations: gross weight (metric tons); value (thousands) 3/	Year to date p/ 2/ Gross weight (metric tons)	Year to date p/ 2/ Value 3/ (thousands)	Year to date p/ 2/ Principal sources and destinations: gross weight (metric tons); value (thousands) 3/
Imports for consumption:						
Manganese oxides other than dioxide	56	$161	Japan 38; $114	759	$1,940	Japan 318; $977
Sulfates, basket category, including manganese sulfate	4,310	1,990	Mexico 2,160; $930	19,300	10,600	Mexico 12,800; $5,980
Potassium permanganate	206	435	Spain 98; $235	912	1,810	Czech Republic 414; $784
Manganites, manganates, and other permanganates	--	--	--	10	34	Canada 10; $34
Exports:						
Manganese dioxide	538	797	Canada 241; $114	2,480	2,810	Canada 1,270; $562
Manganese oxides other than dioxide	828	1,100	Colombia 257; $103	5,450	5,840	Canada 2,300; $1,020
Sulfates, basket category, including manganese sulfate	2,080	1,240	Canada 1,720; $530	14,900	9,290	Canada 12,200; $3,930
Potassium permanganate	78	159	Germany 47; $91	375	889	Germany 167; $388
Manganites, manganates, and other permanganates	14	67	Mexico 5; $13	155	804	Germany 79; $369

p/ Preliminary.
1/ Data are rounded to three significant digits.
2/ May include revisions to previous months' data.
3/ For imports, Customs value; for exports, f.a.s. value.

Source: Bureau of the Census.

TABLE 8
JAPAN: CONSUMPTION OF MANGANESE MATERIALS BY THE STEEL INDUSTRY, 1976-95

(Metric tons, gross weight, except as noted)

Year	Raw steel production (million metric tons)	Ferruginous manganese ore				Manganese ore				Ferroalloys and metal			
			For steelmaking				For steelmaking						
		For producing ferroalloys	All uses 1/	Portion for refined iron	Total	For producing ferroalloys	All uses 1/	Portion for refined iron	Total	Hc FeMn	Lc FeMn	SiMn	Mn metal
1976	107.40	146,338	1,260,980	43,558	1,407,318	1,646,066	45,420	1,772	1,691,486	367,085	90,950	368,183	2,132
1977	102.40	150,792	1,109,072	37,605	1,259,864	1,384,136	18,196	781	1,402,332	361,468	82,149	345,369	1,963
1978	102.10	119,783	990,833	46,588	1,110,616	1,216,614	986	12	1,217,600	379,977	75,621	337,419	1,753
1979	111.75	175,158	1,029,805	66,767	1,204,963	1,450,271	848	12	1,451,119	413,718	82,906	353,799	2,473
1980	111.40	182,462	977,084	78,356	1,159,546	1,403,496	87,474	17,157	1,490,970	423,415	92,000	344,693	2,743
1981	101.68	147,900	785,122	89,648	933,022	1,328,559	89,161	12,302	1,417,720	413,449	94,506	322,080	2,594
1982	99.55	151,424	716,186	95,283	867,610	1,222,053	55,119	176	1,277,172	356,560	105,343	329,817	2,862
1983	97.18	135,453	566,239	131,558	701,692	927,849	48,416	115	976,265	319,260	75,426	324,082	3,087
1984	105.59	186,607	769,851	208,796	956,458	1,087,186	64,283	7,998	1,151,469	336,925	79,310	348,216	3,798
1985	105.28	185,435	710,598	296,403	896,033	1,015,578	75,451	25,243	1,091,029	321,999	85,115	344,844	3,514
1986	98.28	136,375	640,006	339,769	776,381	813,913	81,464	66,597	895,377	272,258	67,488	292,993	3,161
1987	98.51	106,028	468,278	250,034	574,306	680,361	255,049	247,841	935,410	273,389	52,958	255,498	3,829
1988	105.68	133,924	319,921	128,133	453,845	707,594	419,646	378,407	1,127,240	299,837	68,572	270,213	7,036
1989	107.91	138,408	296,696	121,328	435,104	753,109	407,974	335,083	1,161,083	313,707	66,021	275,248	8,427
1990	110.34	138,635	254,311	125,693	392,946	804,547	301,960	258,771	1,106,507	360,870	69,642	286,165	9,939
1991	109.65	136,790	215,155	103,863	351,945	799,486	240,851	194,808	1,040,337	361,504	72,322	312,623	12,651
1992	98.13	122,796	168,165	92,338	290,961	665,958	270,120	215,959	936,078	313,041	67,230	270,399	12,268
1993	99.62	118,034	184,792	108,996	302,826	684,493	186,877	154,152	871,370	330,087	67,271	255,830	13,580
1994	98.29	130,696	192,959	108,617	323,655	594,766	136,569	122,014	731,335	317,221	63,012	266,166	15,852
1995	101.64	139,830	195,813	102,685	335,643	601,632	129,982	129,982	731,614	322,594	63,082	290,466	16,280

1/ Includes consumption for sinter, pellet, refined pig iron, refined iron, and other steel, as applicable.

Sources: 1976-88: March 1990 supply-demand tabulation of the Metal Mining Agency of Japan. 1989-95: Yearbook of Iron and Steel Statistics of the Ministry of International Trade and Industry (Japan).

TABLE 9
JAPAN: UNIT CONSUMPTION OF MANGANESE MATERIALS IN IRONMAKING AND STEELMAKING, 1976-95

(Kg per metric ton of raw steel, except as noted)1/

		(a) Basis: Gross weight of material						(b) Basis: Estimated manganese content								
		Ore		Ferroalloys and metal				Ore		Ferroalloys and metal				Totals		
Year	Raw steel production (million metric tons)	Ferruginous manganese	Manganese	Hc FeMn	Lc FeMn	SiMn	Mn metal	Ferruginous manganese	Manganese	Hc FeMn	Lc FeMn	SiMn	Mn metal	Ore	Ferroalloys and metal	All manganese materials 2/
								Assumed average manganese content, percent								
								36	48	75	81	66	100			
1976	107.40	11.741	0.423	3.418	0.847	3.428	0.020	4.227	0.203	2.563	0.686	2.263	0.020	4.430	5.532	9.962
1977	102.40	10.831	0.178	3.530	0.802	3.373	0.019	3.899	0.085	2.647	0.650	2.226	0.019	3.984	5.542	9.527
1978	102.10	9.705	0.010	3.722	0.741	3.305	0.017	3.494	0.005	2.791	0.600	2.181	0.017	3.498	5.589	9.088
1979	111.75	9.215	0.008	3.702	0.742	3.166	0.022	3.317	0.004	2.777	0.601	2.090	0.022	3.321	5.489	8.810
1980	111.40	8.771	0.785	3.801	0.826	3.094	0.025	3.158	0.377	2.851	0.669	2.042	0.025	3.534	5.586	9.121
1981	101.68	7.721	0.877	4.066	0.929	3.168	0.026	2.780	0.421	3.050	0.753	2.091	0.026	3.201	5.919	9.119
1982	99.55	7.194	0.554	3.582	1.058	3.313	0.029	2.590	0.266	2.686	0.857	2.187	0.029	2.856	5.759	8.614
1983	97.18	5.827	0.498	3.285	0.776	3.335	0.032	2.098	0.239	2.464	0.629	2.201	0.032	2.337	5.325	7.662
1984	105.59	7.291	0.609	3.191	0.751	3.298	0.036	2.625	0.292	2.393	0.608	2.177	0.036	2.917	5.214	8.131
1985	105.28	6.750	0.717	3.059	0.808	3.275	0.033	2.430	0.344	2.294	0.655	2.162	0.033	2.774	5.144	7.918
1986	98.28	6.512	0.829	2.770	0.687	2.981	0.032	2.344	0.398	2.078	0.556	1.968	0.032	2.742	4.634	7.376
1987	98.51	4.754	2.589	2.775	0.538	2.594	0.039	1.711	1.243	2.081	0.435	1.712	0.039	2.954	4.268	7.222
1988	105.68	3.027	3.971	2.837	0.649	2.557	0.067	1.090	1.906	2.128	0.526	1.688	0.067	2.996	4.408	7.403
1989	107.91	2.749	3.781	2.907	0.612	2.551	0.078	0.990	1.815	2.180	0.496	1.683	0.078	2.805	4.437	7.242
1990	110.34	2.305	2.737	3.271	0.631	2.593	0.090	0.830	1.314	2.453	0.511	1.712	0.090	2.143	4.766	6.909
1991	109.65	1.962	2.197	3.297	0.660	2.851	0.115	0.706	1.054	2.473	0.534	1.882	0.115	1.761	5.004	6.765
1992	98.13	1.714	2.753	3.190	0.685	2.756	0.125	0.617	1.321	2.393	0.555	1.819	0.125	1.938	4.891	6.829
1993	99.62	1.855	1.876	3.313	0.675	2.568	0.136	0.668	0.900	2.485	0.547	1.695	0.136	1.568	4.863	6.432
1994	98.29	1.963	1.389	3.227	0.641	2.708	0.161	0.707	0.667	2.421	0.519	1.787	0.161	1.374	4.888	6.262
1995	101.64	1.927	1.279	3.174	0.621	2.858	0.160	0.694	0.614	2.380	0.503	1.886	0.160	1.307	4.929	6.237

1/ The multiplying factor for converting from kg per metric ton to lb per short ton is 2.0. For example, unit consumptions of 7 kg per metric ton and 14 lb per short ton are the same.
2/ Data may not add to totals shown because of independent rounding.

Sources: 1976-88: March 1990 supply-demand tabulation of the Metal Mining Agency of Japan. 1989-95: Yearbook of Iron and Steel Statistics of the Ministry of International Trade and Industry (Japan).